

**Description of the Larval Stage of
Rhyacophila vuphiphes Milne¹
(Trichoptera: Rhyacophilidae)**

F. F. SHERBERGER AND J. B. WALLACE

DEPT. ENTOMOL., UNIV. OF GEORGIA, ATHENS, GEORGIA 30601

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Abstract: The larval stage of *Rhyacophila vuphiphes* Milne is described. It appears to prefer small rivers. Water quality parameters are given.

The caddisfly genus *Rhyacophila* has 26 species in eastern North America (Flint, 1962). The larval stages of most of these were unknown until Flint's work, which described all but 4 of the eastern species. One of these undescribed larvae, *R. vuphiphes* Milne, has been reared and is described below.

Rhyacophila vuphiphes Milne, Length of largest mature larva 17 mm. Head yellowish brown, the frontal suture bordered with black. Two dorsal longitudinal dark bands extend to the frontal suture, forming a distinct "H" pattern dorsally. A few indistinct muscle scars present (Fig. 1). Mandibles as in Fig. 2. Pronotum bordered by black both anteriorly and posteriorly (Fig. 1). A single well developed gill-like filament anterodorsal to the coxal bases on the meso- and metathorax. Abdomen purplish in alcohol preserved specimen, dark green in life. Anal leg with a free basoventral hook. Apicolateral spur short and decurved. Anal claw with one large and one small accessory tooth (Fig. 3). This description based on 18 larvae from the following locations: Little River, Oconee Co., S. C., 4 larvae; Tallulah River, Rabun Co., Ga., 5 larvae; Tugaloo River, Stephens Co., Ga., 9 larvae.

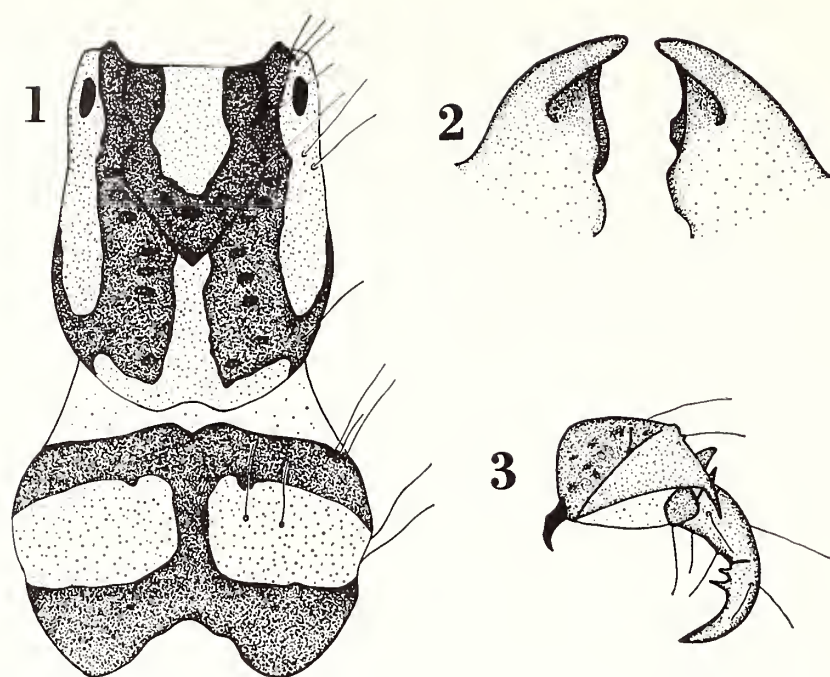
DISCUSSION

Rhyacophila vuphiphes will key to *R. amicus* Ross in Flint's larval key (1962), but can be separated from the latter by the distinctive "H" pattern on the head. *R. vuphiphes* apparently constructs the pupal chamber of small pebbles in the early summer. The larva remains in this chamber for several weeks prior to pupation, which takes place in late August. The adults emerge a few weeks later. The few pupae collected had constructed their pupal chambers on the underside of rather large rocks 1–2 feet in diameter in riffle areas.

R. vuphiphes is restricted to eastern North America (Ross, 1956). We have collected specimens only in small, rocky rivers, averaging about 40 meters in width, in the southern Appalachian foothills (800–1,200 ft. elevation).

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Rhyacophila vuphiphes Milne, larva: Fig. 1, head and pronotum; Fig. 2, mandibles dorsal view; Fig. 3, anal leg and claw

Larvae and adults have been collected over the following range of water quality parameters: temperature 3.6–24°C; pH 5.6–7.1; conductivity 12.3–42 microhms; turbidity 8–86 J.U.; alkalinity as CaCO_3 10–20 ppm; nitrate .261–.44 ppm; nitrite .001–.006 ppm; ammonia nitrogen .25–.64 ppm; orthophosphate .16–.20 ppm; total phosphate .20–.25 ppm; sulfate 0–2.5 ppm; dissolved oxygen 5.5–11.9 ppm.

Literature Cited

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